UNITED STATES READY RESERVE FORCE

PHASE IV

MAINTENANCE PROCEDURES

FOR

T1-MET-24a

CLASS VESSELS

Twin Screw, Bulk Oil Tankers

M/V ALATNA (T-AOG 81)

and

M/V CHATTAHOOCHEE (T-AOG 82)

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TANKER SPECIFICATIONS

NAME:	M/V ALATNA	M/V CHATTAHOOCHEE
Class/No:	T-AOG-81	T-AOG-82
Classification:	ABS + A1 E OIL Carrier	ABS + A1 E OIL Carrier
Call Sign:	KXIF	KXGS
Off. No./I. D. No.:	986557/5700316	986559/5700887
U.S.C.G. No.:	CG003928	CG002122
Built:	1957 Bethlehem Steel Staten Island, N.Y.	1957 Bethlehem Steel Staten Island, N.Y.
Rebuilt:	1981 National Steel & Ship Building, San Diego	1981 National Steel Ship Building, San Diego
Gross Tons:	3,459	3,459
Net Tons:	1,943	1,943
Deadweight Tons:	4,795 approx.	4,795 approx.
Lt. Ship Displ..:	2,260.52 L/T	2,260.52 L/T
Length overall:	302.00'	302.00'
Mld. Length:	286.08'	286.08'
Mld. Breadth:	60.92'	60.92'
Mld. Draft:	22.49'	22.49'
L.C.G.:	163.98'	163.98'
V.C.G.:	21.08'	21.08'
Suez Gross:	3,804.16	3,804.16
Suez Net:	2,768.14	2,768.14
Panama Gross:	3,804.16	3,804.16
Panama Net:	2,234.17	2,234.23
Main Engines:	2 ea. Alco 12-251-E 2,185 hp. ea. @ 900 RPM	2 ea. Alco 12-251-E 2,185 hp. ea. @ 900 RPM
Generators:	3 ea. Cat D353 x 300kW	3 ea. Cat D353 x 300kW
Emergency Generator:	1 ea. CAT D326F x 150kW	1 ea. CAT D326F x 150kW
Service Speed:	12.0 kts.	12.0 kts.
Range:	11,800 miles	11,800 miles
Consumption:	97/100 BBLS Gas Oil	97/100 BBLS Gas Oil
Bunker Capacity:	3,828 dbl. bot. & wings 95% +136 Misc. fuel tanks	3,828 dbl. bot. & wings 95% +136 Misc. fuel tanks
COMSAT Tel/Tlx:	872-150-1420	872-150-1424
COMSAT Fax:	872-150-1421	872-150-1425
MarAd No.:	DTMA91-96-F-00014	DTMA91-96-F-00015

100 GENERAL

ITEM 103 GENERAL NOTES

NOTE: THESE INSTRUCTIONS AND GUIDELINES ARE PROVIDED TO ENSURE THAT ALL PROPULSION, MACHINERY, ELECTRICAL, CARGO HANDLING, PIPING AND RELATED SYSTEMS ON THE SUBJECT VESSEL ARE MAINTAINED IN A CONTINUOUS STATE OF ACTIVATION READINESS. THE CONTRACTOR SHALL REPORT ANY AND ALL DEFICIENCIES WHICH MAY ADVERSELY AFFECT THE VESSEL'S READINESS STATUS.

1. All inspections and tests as indicated in these instructions and guidelines shall be performed at intervals as specified.

2. Contractor shall provide all supervision, labor, services, and tools necessary to perform all inspections, tests, and tasks as specified in these instructions. On-site supervision shall be provided by qualified person/personnel when performing all inspections, tests, and tasks as specified.

3. All inspections, tests, and tasks as specified by these instructions shall be performed in accordance with good marine practice and are subject to inspection by the American Bureau of Shipping and the US Coast Guard as specific regulations apply. All exercising and testing of equipment and machinery shall be performed in accordance with the individual equipment/machinery manufacturer's procedures, guidelines, safety precautions, and instructions.

4. Prior to testing all equipment and machinery as specified in these instructions and guidelines, ensure proper lubrication and proper fluid levels. Lubricate as required and replenish fluids as necessary using new fluid as recommended by the equipment's manufacturer or ship's lubrication chart. When adding fluid/lubricant to machinery, ensure new fluid/lubricant is compatible with existing fluid/lubricant.

5. While performing visual inspections, visually inspect all machinery fasteners for damage, defects, and deterioration. Replace fasteners with new fasteners equal to original as required. Ensure fasteners are properly and securely fastened. Coat fasteners with proper preservation compound as required.

6. Government owned shipboard and shore based spare parts shall not be used for performing maintenance as required by these instructions and guidelines without prior approval of the Maritime Administration or CMS Representatives.

7. Contractor shall develop check off lists and reporting system for ensuring all motors, ventilation fans, valves, tank gauging, dehumidification system, and all

ITEM 103 GENERAL NOTES continued

other equipment specified in these instructions have been properly inspected,tested, and maintained in accordance with these instructions.

8. Megger test all electrical equipment to ensure safe and satisfactory operation prior to testing and energizing same. Hand rotate all motors to ensure free operation of same. Submit report (see General Note L) of all insulation resistance readings. Ensure insulation resistance is within acceptable range as determined by equipment's nameplate data. Electrical equipment supplied by 440 volt source shall have a minimum insulation resistance of 400 kilo-ohms to ensure safe and satisfactory operation when energized. Electrical equipment supplied by 120 volt source shall have a minimum insulation resistance of 100 kilo-ohms to ensure safe and satisfactory operation when energized. All electrical equipment containing solid state components shall be megger tested in accordance with the equipment manufacturer's instructions. THE MAIN CONTROL CONSOLE AND GENERATOR CONTROLS IN MAIN SWITCHBOARD SHALL NOT BE MEGGER TESTED.

9. Contractor shall ensure that adequate fire fighting capability is available aboard ship. Additional requirements as deemed necessary as a result of the tests and inspections as specified in these instructions shall be included. Fire fighting equipment and requirements shall meet the requirements of the Japanese Marine Safety Agency and other regulatory agencies governing the port/berth where the vessel is moored. The Contractor shall derive plans for fighting fires aboard the vessel. Adequate training shall be provided to all personnel. Fire control shall be readily visible and posted near gangway. See Item 110 General Tasks. Note that the Contractor is to furnish fire stands and hoses. The ship's system is not to be charged as it is used for D/H air distribution.

10. Sea valves and sea chests which are not blanked off shall not be exercised. Ensure sea valves and sea chests exposed to the sea are tagged indicating the same, disabled (if required), and chained and locked closed.

11. Fuel oil, diesel oil, and lube oil system valves shall not be exercised, unless otherwise specified in these instructions and guidelines. After completing tests, and exercising as required, ensure all fuel oil, diesel oil and lube oil system valves shall be closed.

12. After completing all tests and inspections as specified in these instructions, complete dehumidification system report, insulation resistance readings report, tank gauge report, and all other reports and forms required by these instructions. Submit forms and a typewritten report indicating inspection and test results to the CMS Representative. Identify equipment in report with M & R codes, sub-codes and titles. Codes, sub-codes and titles shall be obtained from MarAd/CMS. The report shall be organized and formatted in the same manner

ITEM 103 GENERAL NOTES continued

as these instructions are organized and formatted. Check off lists, deficiency and condition reports shall be submitted to the CMS Representative not later than the last day of each calendar month.

ITEM 105 GENERAL TASKS

1. Provide shore power available for use; 440 V, 60 HZ, 250 AMPS. Test for proper phasing immediately upon installation to prevent damage to equipment.

2. Provide fire protection at all times. Three fire stands shall be provided on each ship at the following locations: bow, stern and midships. Sufficient hoses shall be provided to cover any area in ship, interior and exterior. The ship's equipment shall not be used.

3. System shall be charged at all times with 7bar (100 psig) pressure. The ship's portable extinguishers may be utilized for general protection, but the Contractor is to provide extinguishers for the fire watch during any burning, welding, or heating operations.

4. Provide a fire watch during all burning, welding, or heating operations.

5. Take delivery and custody of any U.S. Government or Crowley Marine Services (CMS) furnished materials or equipment shipped in support of this operation, or items that are removed from ship for storage. Store, preserve and protect as required in a separate, covered and weather protected Contractor's warehouse. An inventory of vessel stores and equipment stored in warehouses shall be maintained by the Contractor.

6. Provide crane and rigging service for movement on or off ships of stores, equipment, and materials utilized in support of this operation.

7. Provide bulk trash container/s on deck or at the ship's gangway as required for garbage, trash and local recycling/environmental regulations. Remove garbage and debris as required on a daily basis during all maintenance periods.

8. Provide daily cleanup of work areas, temporary storage areas, and areas used by workmen for mustering, lunch, etc. Provide garbage cans with lids at gangway and at strategic areas on deck.

9. Smoking is strictly forbidden in all accommodation, navigation, machinery, storage and under deck spaces. Following inspection by a certified chemist, designating the vessel as 'safe for personnel and fires," the Contractor may designate an onboard, exposed weather deck smoking area. The shipyard shall

ITEM 105 GENERAL TASKS continued

provide receptacles for cigarette butts and smoking materials and be responsible for the cleanliness of the designated area.

ITEM 107 MONTHLY TASKS

TASK: Visually inspect entire vessel including all cargo tanks, machinery spaces, accommodation spaces, steering gear room, bridge, and all other spaces. The inspection shall include the following:

1. Visually inspect all bilges, bilge-wells, accessible cofferdams and voids for presence of water, oily wastes, and other liquids. Report presence of same in accordance with Item 450. Test bilge level and flooding alarms; including both audio an visual indicators (See Item 315). Bilges shall be kept dry and free of oily waste and other liquids. Oily waste and other liquids shall be disposed of on a competitive unit price basis. Do not duplicate quotations.

NOTE: THE DISCHARGE TO THE SEA OR OTHER WATERS OF OILS, OILY WASTES, SLUDGE, INDUSTRIAL WASTES, FOOD WASTE, TRASH, AND REFUSE COLLECTED ASHORE OR FROM SHIP IN PORT IS PROHIBITED. ALL OILY WASTES AND OILS SHALL BE STORED AND TRANSFERRED TO PROPER SHORE SIDE FACILITY FOR PROCESSING. NOTIFY CMS REPRESENTATIVE PRIOR TO TRANSFERRING OILS, OILY WASTES, SLUDGE, AND INDUSTRIAL WASTES.

NOTE: See item 315 and 450. Do not duplicate pricing.

2. Check stern tube shaft seals for leakage. Notify CMS representative if leakage occurs.

3. Visually inspect mooring lines for chaffing, damage, and deterioration. Report all deficiencies to CMS Representative. Tension mooring lines as required to insure equal strain, that the vessel is securely alongside the dock and that chaffing is minimized..

4. Measure and record forward and after draft readings. When noticeable change has occurred, immediately notify CMS Representative.

5. Visually inspect interior and exterior of vessel for general cleanliness. Remove trash and accumulated debris not less than once in each month. Maintain all exterior decks and interior spaces, clean and debris free. Ensure all deck drains and scuppers are free of debris and foreign materials.

6. Visually inspect shore power connection for proper connection.

ITEM 107 MONTHLY TASKS continued

7. Visually inspect all stores' lockers, valuable lockers, and slop chest to ensure seals and locks are not disturbed and broken. When seals and locks are found to be disturbed or broken, immediately notify CMS Representative.

MOBIL OIL PRODUCTS

Location	Product	Number
Winches, Stern tube	Gear Oil	# 632
Main Engines	Mobilgard	#450
Generators	Mobilgard	#450
CPP	DTE	#13

DATA: Mobil Oil Company preservative and lubrication oils have been specified throughout this specification and will, unless otherwise specified, be provided by the owner. Contact the CMS Representative for supply of lubricating products as required. The Mobil Oil representative in Japan is:

Mobil Oil Co., Japan
Tel: 03-3244-4430
Fax: 03-3244-4071

200 ENGINEERING

ITEM 207 DIESEL ENGINES - MAIN ENGINES AND GENERATORS

CAUTION: BEFORE STARTING MAIN ENGINES ASCERTAIN THAT ALL STERN CATHODIC ANODES ARE CLEAR OF THE WATER, THAT THE STERN IS CLEAR OF FLOATING DEBRIS, THAT A BRIDGE MOORING AND GANGWAY WATCH IS IN PLACE AND THAT BOTH THE SOUND-POWERED AND TELEGRAPH COMMUNICATIONS ARE ACTIVATED AND TESTED BETWEEN THE BRIDGE AND ENGINEROOM.

DATA: Main Propulsion Engines: Two
Mfr: Alco Power, Inc. Model: 12-251-E, Bore and stroke: 9 in. x 10-1/2 in., RPM: 900, Single acting - four stroke cycle - turbocharged.

Generator Diesel Engines: Three
Mfr: Caterpillar Model: D353 No. of cyl.: 6, Bore and stroke: 6-1/4 in. x 8 in.

Emergency Diesel Generator Engine: One
Mfr: Caterpillar Model: D326F No. of cyl.: 6, RPM: 1200, Bore and stroke: 5-1/8 in. x 6-1/2 in. Generator: General Electric Type: ATI; 93.75 KVA; 250 Volts.

TASK: Perform the following inspections, tests and maintenance to each engine:

1. Check for proper lube oil level in the sump. Lubricate per the manufacturer's instruction.

2. Insure proper coolant level, concentration of corrosion inhibitor, and/or antifreeze. A proper proportion of antifreeze is to be maintained for the climate at the lay-up site. The use of antifreeze is mandatory in the emergency generator.

3. Check for adequate fuel supply. If necessary, refill day tank from settler using purifier. Clean purifier after use. (See item 270.)

4. Remove diesel exhaust blanks. Reinstall all covers after running.

5. Verify that the battery and air starting systems are charged and ready for use.

6. Start up the diesel engine, idle until the cooling water comes up to minimum operating temperature. Operate the generators under load for a least 1/2 hour. (Caution: Do not parallel generators with emergency generators or shore power connections.)

ITEM 207 DIESEL ENGINES - MAIN ENGINES AND GENERATORS continued

7. Check the proper operation of all gauges, sensors and controls.

8. Change the lube and fuel filters at the number of operating hours recommended in the manufacturer's operating manual.

9. All associated valves are to be completely opened and the threaded portion of the stems lubricated. After this, they are to be completely closed and then returned to their original position at lay-up.

10. Change the oil, oil filters and air filters, as required.

11. Refill D.O. service tanks from ship's supply. Maintain level between 1/3 to 2/3 full.

12. Operate all engine room ventilation and exhaust vent blowers for one minute without removing covers.

PURPOSE: To insure operational readiness.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: Owner-furnished heavy grease, anti-freeze, wire rope lubricant, diesel fuel No. 2, oil and fuel filters, Mobilgard Lubricating Oil No. 450, Gear Oil No. 632

RECORD AND REPORT: Submit a written report of conditions found; corrective measure taken, and date of accomplishment to the CMS Representative.

ITEM 210 PORT AND STARBOARD PROPELLERS AND SHAFTS AND SEALS

TASK: Inspect internal propeller shafts and controllable pitch propeller assemblies and stern tube seals for damage, deterioration and oil and water leakage. Insure oil level and valves are lined up correctly to keep oil head pressure on system at all times. Operate system from zero pitch to full ahead and full astern with shaft stationary. In conjunction with operation of diesel engines, exercise while clutched in and rotating to 1/2 ahead and 1/2 astern for 20 minutes each port and starboard. (SEE CAUTION ITEM 205).

PURPOSE: To insure operational readiness, operate systems when engines are run.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: Owner furnished Mobilgard 632. AND DTE 13

RECORD AND REPORT: Submit a written report of conditions found and date of accomplishment to CMS Representative.

ITEM 212 INSPECT AND CLEAN PROPELLERS

TASK: 1 Provide services of qualified diver

2. Rotate shafts per diver's requirements.

3. Remove growth by hand-scraping or wire brushing, taking care not to remove anti-fouling paint from propeller.

NOTE: Do not reinstall shaft lock unless ship is to be moved under tow.

PURPOSE: To prevent buildup of growth on propeller blades, and to insure operational readiness.

FREQUENCY OF PERFORMANCE: 2-1/2 years (Next due October, 1999) during ABS required underwater survey.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit written report of conditions found to CMS Representative. Submit at least six (6) each colored pictures of the underwater hull including the propellers.

ITEM 215 STEERING GEAR

TASK: 1. Remove the steel chocking blocks; clean preservative from rams and follow-up gear.

2. Rotate pumps and motors manually to insure freedom of movement.

3. Verify megger test readings of electric motors (Item 330) to insure that motors are satisfactory for operation. Item 330 covers the pricing for this specific task. Do not duplicate billing.

4. Operate rudder gear from electrical steering stands on the bridge as follows:

NOTE: BEFORE OPERATING THE RUDDER, ASCERTAIN THAT AREA IN WAY OF THE RUDDER IS FREE AND CLEAR OF ALL DEBRIS, FLOATING EQUIPMENT, AND BOATS.

5. Activate rudder angle indicator. Observe the following tests from the bridge to insure proper operation.

6. Using the starboard steering gear pump and motor, swing the rudder from midships to 35 degrees right rudder. From 35 degrees right rudder swing to 35 degrees left rudder, and then return to midships.

7. Using the port steering gear pump and motor, swing the rudder from midships to 35 degrees left rudder. From 35 degrees left rudder swing to 35 degrees right rudder, and then return to midships.

8. Using the trick wheel, swing the rudder from 35 degrees right to 35 degrees left, and then return to midships.

9. Using the emergency hand pump, swing rudder to 15 degrees right rudder and then to 15 degrees left rudder, and back to midships.

10. Using the port steering gear motor and pump set the rudder hard over at 35 degrees left rudder. Turn the wheel on the bridge as fast as possible from hard left rudder to hard right rudder. Record the elapsed time from hard left to hard right.

11. Repeat the same test starting with the rudder set at 35 degrees right rudder.

12. Perform the same tests using the starboard unit.

13. Reinstall ram blocking and preserve rams and gears as necessary.

14. Check tank hydraulic oil levels and replenish as necessary.

ITEM 215 STEERING GEAR continued

15. Maintain steering gear compartment deck free of all oil and dirt.

PURPOSE: To insure that the steering engine, hydraulic pumps, electric motors, telemotors and associated valves are operating.

FREQUENCY OF PERFORMANCE: 6-month intervals.

MATERIAL REQUIREMENTS: Owner-furnished hydraulic oil.

RECORD AND REPORT: Report test results in writing to CMS Representative. Report shall include test data and a condition report.

ITEM 220 CENTRIFUGAL PUMPS

TASK: 1. Inspect all centrifugal pumps aboard each ship for damage, deterioration, and effectiveness of dehumidification system.

2. Manually rotate all pumps and motors through five and one quarter (5-1/4) complete revolutions.

PURPOSE: To insure operational readiness.

FREQUENCY OF REQUIREMENTS: 3-month intervals.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit written report of conditions found and date of accomplishment of all requirements to CMS Representative.

DATA:

Boiler Feed Pumps Two (2) each
Mfr: John Bean Co.
Model: L0-914 B-1 Horizontal Triplex Piston

Evaporator Pumps One (1) each

Duplex Vacuum Priming Unit One (1) unit Consisting of Two (2) Vacuum Pumps
Mfr: Nash Engineering Company
Model: MD 571

Fresh Water Pumps Two (2) each
Mfr: Worthington Corporation
Model: 1-1/4 TH-11

ITEM 220 CENTRIFUGAL PUMPS continued
DATA continued

Gray Water Pumps Two (2) each
Mfr: Chicago Pump Company
Model: VPMLMC-4

Hot Water Circulating Pump
Mfr: Worthington Corporation
Model: 1-DNS-2 Monobloc

Stripping Pump and Tank: (In MSD Room)
Mfr: Sarco

Boiler Feed Booster Pumps (2 each)
Mfr: Carver Pump Company
Model: 1-1/4 SPL

Fire Bilge and Ballast Pump
Mfr: Worthington Corporation
Model: 4-LV-10

Priming System for Fire, Bilge and Ballast Pump:
Mfr: Nash Engineering Company
Model: MD 2L

Vacuum Pump:
Mfr: Nash
Type: AT-34

Condensate Pump:
Mfr. Worthington
Type 3/4 DN-4

ITEM 225 CARGO OIL/BALLAST PUMPS & PIPING

DATA: CARGO PUMPS - two in forward pump room, three in aft pump room.
Mfr: Worthington Corp.
I.D.: 6-L-11 (centrifugal)
Capacity: 1000 GPM

Cargo Stripper Pumps - two in forward pump room, three in aft pump room.
Mfr: Worthington Corp.
I.D.: 4VEV (Rotary)
Capacity: 200 GPM
Fwd Pumproom Motor Room Fire and Bilge Pump

ITEM 225 CARGO OIL/BALLAST PUMPS & PIPING

TASK: Inspect entire system for damage and deterioration, and presence of water. Manually rotate pumps 5 1/4 complete revolutions to insure freedom of movement. Pressure lubricate all grease fittings.

PURPOSE: To insure operational readiness and to reposition the shafts to prevent the seals and packing from taking a set with time.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: Owner's supplied grease.

RECORD AND REPORT: Submit written report of conditions found and date of accomplishment to CMS Representative.

ITEM 230 FRESH, POTABLE AND DRINKING WATER SYSTEMS

TASK: 1. Inspect systems for damage and deterioration.

2. Report any problems to CMS Representative

a. Distiller Feed Pump:
Mfr: Worthington Pump Company
Model: 20-NF-52

b. Distiller Pump:
Mfr: Worthington Pump Company
Model: 3/4 DN-4

c. Distiller Brine Pump:
Mfr: Worthington
Model: 2 DNE-72

d. Bilge and Ballast Pumps Two (2) each
Mfr: Worthington Corporation
Model: 3-RVS

e. S.W. Booster Pump for 300 KW Diesel Engines Three (3)
Mfr: Worthington Corporation
Type: 3 MNE-52 Monobloc

PURPOSE: To insure operational readiness; to facilitate system activation.

FREQUENCY OF PERFORMANCE: 6-month intervals.

ITEM 230 FRESH, POTABLE AND DRINKING WATER SYSTEMS continued

MATERIAL REQUIREMENTS: None

RECORD AND REPORT: Submit written report of conditions found to CMS Representative, list all closures.

ITEM 235 OPEN ITEM

ITEM 240 OPEN ITEM

ITEM 245 MSD SYSTEM

TASK: Visually inspect MSD tank for the presence of moisture. Wipe down as necessary. Inspect coatings. Check pumps and Roots blowers for condition and effectiveness of preservation. Rotate pumps, blowers, and motors through 5 1/4 revolutions. Cycle 3-way valves in auxilliary machinery spece, port side outboard behind work bench.

PURPOSE: To inhibit tank corrosion and to insure operational readiness.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit written report of conditions found to CMS Representative.

ITEM 250 OPEN ITEM

ITEM 255 AIR COMPRESSORS AND PIPING SYSTEMS

DATA: 1. Ship's Service Air Compressor: One
Mfr: Worthington-Atlas Copco
I.D.: 25 ENBR
Type: Two stage - three cyl.
Size: 6 in./6 in./4-1/2 in. x 2-3/4 in.
Disch. Press.: 125 psi
Instr. Bk.: NAVSHIPS 0349-055-7000 (on ship)

2. Diesel Engine Starting Air Compressors: Two
Mfr: Ingersoll-Rand
I.D.: 15T2 - Type 30
Type: Two stage - three cyl.
Disch. Press.: 250 psi
Instr. Bk.: Operation and Maint. Instr. for Type 30 HP Compressor - Model 15T2 (on ship). No NAVSHIPS number.

3. Control Air Compressor: One
Mfr.: Ingersoll-Rand
I.D.: Model 5C-3
Disch. Press.: 125 psi
Location: Aux. Mach. Rm. - Lower Level - Stbd. side.

Unfired Pressure Vessels

1.. Ships Service Air Tank - One
Capacity: 25 cu. ft.
Size: 32 in. O.D. x 5 ft. 2 in. long
Relief Valve Setting: 110 PSIG
Location: 4-118-1

2. Starting Air Tank - Four
Capacity: 5 cu. ft.
Size: 18 in. O.D. x 3 ft. 7 in. long
Relief Valve Setting: 660 PSIG
Locations: 4-114-1, 4-116-1

3. Control Air Receiver: One
Capacity: 60 gal.
Size: 19 in. O.D. x 4 ft. 1 in. long
Relief Valve Setting: 137 PSIG
Location: 4-98-2

TASK: Perform the following inspections and tests on the ship's service, control, and two diesel engine starting air compressors.

ITEM 255 AIR COMPRESSORS AND PIPING SYSTEMS continued

1. Close up any fittings opened for draining the compressed air system.

2. Check the air compressor sumps for lube oil, add as required.

3. Check the motor controllers for sticking contacts and relays.

4. Activate the compressor and test for proper functioning of the manual and automatic standby start functions.

5. At the completion of the testing, drain down the system.

6. All associated valves are to be completely opened and the threaded portion of the stems lubricated. After this, they are to be completely closed and then returned to their original position at lay-up. Valves in air piping system are to be opened/closed as found. Air receivers are to be drained.

7. Change the compressor oil as required.

FREQUENCY OF PERFORMANCE:3-month intervals, except oil change to be done annually.

MATERIAL REQUIREMENTS: Owner's supplied heavy grease and compressor oil.

RECORD AND REPORT: Submit written report of conditions found and date of accomplishment to CMS Representative.

ITEM 260 BOILERS (2)

DATA: Mfr: Va Power
Model: FNCZ-4656-VAK-D
Spec. No.: 79502-073

TASK: 1. Inspect the heating boilers (2) internals for deterioration and check condition of firesides and watersides.

2. Develop test procedures to simulate boiler control and alarm circuits.

PURPOSE: To insure operational readiness.

FREQUENCY OF PERFORMANCE: 6 month intervals.

ITEM 260 BOILERS (2)

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit written report of conditions found to CMS Representative.

ITEM 265 OPEN ITEM

ITEM 270 LUBE AND DIESEL OIL PURIFIERS

TASK: 1. Inspect one lube oil purifier and two diesel oil purifiers for condition and effectiveness of dehumidification system. All three purifiers are DeLaval Model 55-N-03 centrifugal types.

2. Operate lube oil purifier for 2 hours on each stern tube. Clean purifier upon completion.

3. Operate fuel purifiers for 1/2 day each to batch purify the fuel in the day tank prior to starting engines (item 205). Clean purifiers upon completion.

4. All associated valves are to be completely opened and the threaded portion of the stems lubricated. After this, they are to be completely closed and then returned to their original position at time of lay-up.

PURPOSE: To insure operational readiness.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit written report of conditions found and date of accomplishment to CMS Representative.

ITEM 275 LUBE OIL ANALYSIS

TASK: 1. Obtain samples of lube oil from each stern tube lube oil systems at the lowest point, the CPP hydraulic oil, steering gear oil, and the crankcases of: Both main engines, three SS generator engines, and the emergency generator. Submit to the CMS Representative for forwarding to a Mobil Oil laboratory for spectrographic and physical analysis of chemical and physical properties, contamination or breakdown of original quality.

2. Insure that all sampling equipment and containers are absolutely clean and free of contaminants prior to sampling and containing samples.

3. Clearly mark samples with I.D. number, vessel, equipment number, etc.

PURPOSE: To insure that tube oil is suitable for immediate use.

FREQUENCY OF PERFORMANCE: Annually.

ITEM 275 LUBE OIL ANALYSIS continued

MATERIAL REQUIREMENTS: Owner's supplied sample containers and services for analysis. Mobil Oil shall be the primary source.

RECORD AND REPORT: Written laboratory analysis report sent to CMS Representative.

ITEM 280 OPEN ITEM

ITEM 285 OPEN ITEM

ITEM 290 REFRIGERATORS AND ICE CUBE MACHINES

TASK: 1. Run two refrigerators and two ice cube machines located in the Crews' Mess and the Officers' Mess for 1 - 2 hours. Insure proper operation of the electrical and cooling system and that door gaskets seal properly. Rotate shafts 5-1/4 revolutions.

2. Inspect ship's service refrigeration systems for damage and deterioration.

3. Check oil levels in ship's service refrigeration compressors. Rotate crankshaft by hand 1/4 turn.

4. Inspect condenser internals for moisture.

PURPOSE: To insure that the units can be the 10-day RFS requirement.

FREQUENCY OF PERFORMANCE: 6-month intervals.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit a written report of conditions found to the CMS Representative.

300 ELECTRICAL

ITEM 305 CATHODIC SYSTEM

DATA: CAPAC Cathodic Protection System
Engelhard Systems
Union, New Jersey 07083

TASK: Monitor operation of the Impressed Current Cathodic Protection System (ICCP) and adjust as required. This consists of three principal steps:

1. The systematic and regular accumulation of Hull Potential readings taken by means of an Engelhard Portable Hull Potential Meter at monthly intervals.

2. The regular accumulation of readings taken at the current metering stations.

3. The adjustment of rectifier tap switches, automatic controls, adjustable resistors and rheostats, as required, to effect a hull potential of 800 to 900 millivolts.

4. On a Weekly Basis: Monitor the CAPAC Impressed Current Cathodic Protection (ICCP) System and log set point, reference cell voltages and current output at the Controller/Power supply. Check that the set point is at 0.85. Adjust as required.

NOTE: Weekly dates and readings should be recorded on duct-tape adjacent to the control center for monitoring by ABS/USCG.

5. On a Monthly Basis: Use a Portable Hull Potential Meter to measure the hull potential at various points along the external hull as follows:

   a. Drop the silver/silver chloride half cell into the water at the bow.

   b. Release enough line to allow the cell to sink to a level even with the keel.

   c. Ground the meter ground probe.

   d. Observe and record the reading.

   e. Move down the starboard side of the ship taking similar readings at 40-60 feet intervals.

   f. Try to get readings midway between the CAPAC ICCP System anodes.

   g. When approaching the stern, take readings off each propeller and directly off the stern.

ITEM 305 CATHODIC SYSTEM continued

h. Continue to take readings along the port side.

i. When last reading is taken at the port bow and logged retrieve the half cell. A complete hull potential profile is now logged.

j. Note frame numbers of the reading locations and the CAPAC ICCP anodes and reference electrodes.

6. On an Annual Basis: Clean CAPAC ICCP System power supply controller of dirt, dust and foreign matter. Clean anodes and reference electrode of foreign matter as required.

PURPOSE: To insure that the under portion of the Hull is being adequately protected from corrosive action.

FREQUENCY OF PERFORMANCE: Monitoring and Adjusting - Weekly
Probe Readings - Monthly
Clean Power Supply - Annually

MATERIAL REQUIREMENTS: Miscellaneous spare parts and materials, ¥10,000 per year, per ship..

RECORD AND REPORT: A record of all readings shall be submitted to CMS Representative.

NOTE; Leave copy of readings on board near main engine throttle station for monitoring by ABS/USCG.

ITEM 310 DEHUMIDIFICATION SYSTEM

DATA: Mfg.: CARGOCAIRE
Model: HC-500
Volts: 440 VAC
Location: Permanently mounted, 1-18-1 Fore Peak Space
Condensate drain: Bulkhead penetration to main deck

MFG.: EBAC Systems Inc., Williamsburg, Virginia
Model: CD-425
Volts: 460 VAC
Location: Temporarily mounted, 2-87-2, Aft Pumproom
Condensate drain: Bulkhead penetration at pumproom WTD.

MFG.: EBAC Systems Inc., Williamsburg, Virginia
Model: CD-100
Volts: 110 VAC
Location: Temporarily mounted, 2-118-1, Engineroom
Condensate drain: Buckets

TASK: To monitor the operation of the dehumidification machines, R/H values, air distribution system, and the automatic control stations.

SPECIFICATIONS: This consists of five principal steps:

1. Taking readings at humidity indicators and cargo and ballast tanks.
2. Adjustments
3. Momentary test run of D/H machines
4. Periodic observation and recording of the elapsed time indicator.
5. Maintenance of recording hydrogrometer.

Performance of the above will indicate whether or not adjustments are necessary to affect the desired uniform relative humidity within the D/H zone. Any malfunction of equipment or the leakage of air and/or water within the D/H

envelope will also be indicated as a result of these test operations. Contractor shall make adjustments to the air distributions and seal any air leaks into the D/H zone as discovered by the inspections.

1. HUMIDITY INDICATORS:

TASK: Record weekly humidity readings at the following locations:

a. Forward store room 1-20-0
b. Hospital, Compt. 1-91-2
c. Officer's Mess, Compt. 01-115-0
d. Engine Room, upper level
e. Engine Room, lower level (30-day recorder)

ITEM 310 DEHUMIDIFICATION SYSTEM continued

Record monthly humidity readings at the following locations which do not contain ballast water. A 40% to 50% humidity range is acceptable in the following tanks:

Wing Tank	Center Tank	Center Tank	Wing Tank
1 Port	1 Port	1-Stbd.	1-Stbd.
2-Port	2-Port	2-Stbd.	2-Stbd.
3-Port	3-Port	3-Stbd.	3-Stbd.
4-Port	4-Port	4-Stbd.	4-Stbd.

2. ADJUSTMENTS:

TASK: High or low humidity conditions and air modulation and control can be adjusted as follows:

a. There are three station control units in the system which are pre-set to an R/H value range of 37%-40%. They are located in the Fore Peak Space, Hospital, Engineroom and Officer's Mess. These control units are used to adjust the system when high or low humidity conditions are revealed by the humidity indicators.

b. The volume of dehumidified air flow into each compartment can be adjusted by opening and closing adjacent fire main hydrants as required.

3. D/H MACHINE TEST RUN:

a. To perform the D/H machine test run, the person assigned to perform this task must visit the machines located within the D/H zone. If the D/H machine is not running, he will momentarily engage the manual control switch, which is located on the machine's control panel. The D/H machine should start to run, then shut off. Return control switch to automatic position.

4. ELAPSED TIME INDICATOR:

a. The person assigned to perform this task shall also observe and record the running time on the D/H machinery as indicated on the elapsed time indicator. This indicator is located adjacent to each D/H machine. The reading taken and recorded at each monitoring interval shall be compared to the previously recorded reading to determine if the machine has been running excessively. Excessive running time will indicate (1) faulty D/H machine, (2) air and water leaks in the D/H zone, or (3) faulty control operation. Readings should be recorded on duct-tape on the adjacent bulkhead for convenient reference.

ITEM 310 DEHUMIDIFICATION SYSTEM continued

5. RECORDING HYDROGROMETER

a. The recording hydrogrometer is located in the Engineroom at 01-52-0. Maintenance requirements include changing the recording charts once each 30 days, replacing the batteries once each 6 months and periodic change of the recording pens. Monthly charts should be clearly marked with the vessel's name, the start date and time, the ending date and time. The instruments are manufactured in Japan with parts, charts and pens readily available from the manufacturer.

b. Periodically it will be necessary to adjust the temperature and humidity settings on the recorder. This should be accomplished at least once in each 3 month period to insure recording accuracy.

NOTE: This is an ABS/USCG item.

PURPOSE: To insure operation of the dehumidification system and integrity of the D/H envelope.

FREQUENCY OF PERFORMANCE: Weekly readings and station adjustment as required. Monthly readings and replacement of lower engine room recorder graph and occasional replacement of batteries and pens.

MATERIAL REQUIREMENT: Miscellaneous spare parts and materials ¥10,000 per ship, per year, and shipyard supplied portable humidity indicator.

RECORD AND REPORT: Submit a report of readings, conditions and monthly recorder chart found to CMS Representative. A copy of all readings shall be left on board for review of American Bureau of Shipping Surveyor.

ITEM 315 FLOODING ALARM SYSTEM

TASK: Test the flooding alarm system by tripping all float switches in following areas:

a. 2 each in Pump Motor Room
b. 2 each in Forward Pump Room bilge
c. 4 each in After Pump Room bilge
d. 4 each in Engine Room bilge
e. 4 each in Aux. Mach. Room bilge

1. Trip switches one at a time and check for activation of siren, and red light located at top of wheelhouse, and horn at FR. 85 on ice passage bulkhead. Insure alarm indicator panel switches are reset after testing.

PURPOSE: To insure that Flooding Alarm System is operable.

FREQUENCY OF PERFORMANCE: Monthly.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit written report of conditions found to CMS Representative.

ITEM 320 SHIP'S LIGHTING SYSTEMS

TASK: 1. Activate the ship's interior/exterior lighting and emergency lighting circuits. Check each circuit for grounds. Re-lamp and replace ballast's as necessary using owner's supplied lamps and equipment.

2. Prior to the next quarterly operation of equipment, advise CMS representative of light and fixture requirements.

PURPOSE: To insure operational readiness of ships lighting systems.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: Owner supplied.

RECORD AND RECORD: Submit written report of any electrical deficiencies, grounded circuits, or mechanical defects found to CMS Representative.

ITEM 323 NAVIGATIONAL LIGHTING

TASK: Activate the running light indicator and the navigation light panel by placing all switches in "ON" position and note whether indicator lights come on. Test filaments. Inspect the running light boxes located at port and starboard bridge wings. Inspect and lubricate hinges and latching device on access doors. Replace any burnt out lamps. Open all fore and aft mast light elements.

Inspect to insure clean and dry. Replace all defective bulbs. Test all lights to insure operation. Close all elements and seal with new gaskets if required.

PURPOSE: To insure operational readiness of the navigational lighting system.

FREQUENCY OF PERFORMANCE: 3 month intervals.

MATERIAL REQUIREMENTS: Preservation oil, navigation light bulbs, gaskets.

RECORD AND REPORT: Submit a written report of conditions found to CMS Representative.

ITEM 325 OPEN ITEM

ITEM 330 INSULATION (MEGGER) READINGS

TASK: Obtain and record 500 volt megger insulation readings of every power, lighting, and intercommunication circuit throughout each ship as follows:

1. POWER CIRCUITS
Measure insulation resistance of each power circuit, motor and generator, controller, and its associated electrical circuit components blocked in a single circuit. Isolate circuits or components with megger readings of less than 1 kilo-ohm per volt and determine their precise locations of the low reading. Furnish the CMS Representative with location of each low reading.

2. LIGHTING CIRCUITS
Measure insulation resistance of each lighting feeder circuit with all distribution panel branch circuits and local area control switches blocked in as a single circuit. Isolate circuits or components with megger readings of less than 1 kilo-ohm per volt and determine the precise locations. Furnish the CMS Representative with location of each low reading.

3. INTERCOMMUNICATION EQUIPMENT
a. Measure insulation resistance of each communication, navigation, alarm, transmitting, and indicating circuits and their associated components, other than electronic equipment, throughout the ships. Isolate circuits or components with megger readings of less than 1 kilo-ohm per volt and determine their locations. Report each low reading to CMS Representative.

b. Exercise special care to prevent megger voltage from entering components that may be damaged by same.

NOTE: DO NOT MEGGER the Central Control Console, the Bridge Control Console, nor the Remote Control Panel for Diesel Generators. DAMAGE WILL RESULT!

PURPOSE: To insure operational readiness and to facilitate activation.

FREQUENCY OF PERFORMANCE: 6-month intervals.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit 3 typed copies of all readings to CMS Representative. Printouts shall be retained for comparison after completion of the first semiannual cycle.

ITEM 335 SWITCHBOARDS, CONTROLLERS, AND CIRCUIT BREAKERS

TASK: 1. Prior to energizing electrical systems: inspect and manually exercise all circuit breakers on ship service, emergency generator, deck machinery, anchor windlass, and steering gear room switchboards. Inspect and manually exercise Contractors in all motor controllers through ship. Inspect all items for cleanliness and wipe down as necessary. Inspect all controller contacts for excessive pitting or wear.

CAUTION: The switchboards and controllers must NOT be energized while performing the above tasks. Lock out and tag at shore power source.

2. Upon completion of this task, all switches are to be left in "OFF" or "OPEN" position to preclude inadvertent equipment starts when switchboards and circuits are energized.

3. Put ship's service generators on the board when diesel engines are tested (See Item 205). Do not parallel with shore power or emergency generator.

PURPOSE: To insure operation readiness of switchboards, controllers and circuit breakers.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit a written report of conditions found to CMS Representative.

ITEM 340 WEATHER EXPOSED LIGHTING, RECEPTACLES AND TUBES

TASK: 1. Inspect and maintain watertight all weather exposed lighting fixtures, receptacles, and cable stuffing tubes. Stuffing tubes were sealed with shipyard supplied sealant during Item 330 covers the pricing for this specific task. Do not duplicate in deactivation billing.

2. Inspect for missing or damaged receptacle covers, outlet caps, vapor-proof globes and metal guards.

3. Repair any weatherizing of connectors or bare wiring leads found during inspections, presently enclosed in heat shrinkable tubing.

PURPOSE: To insure operational readiness and to facilitate activation.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: General Electric RTD 102 sealant or equivalent.

RECORD AND REPORT: Submit written report to CMS Representative.

ITEM 345 ENGINEERING PLANT CONTROL SYSTEMS

TASK: In conjunction with operation of diesel engine operation (Item 205) perform the following tasks:

1. Verify operation of all components of the engineering plant automated controls systems consisting of three consoles: (1) Central Control Console: (2) Bridge Control Console; and, (3) Generator Remote Control Panel. Check out control systems for engines, generators, propellers, telegraph system, bell and data loggers, and other miscellaneous units. Check for presence of moisture, deterioration, and damage. Also check out the refrigerator/dryers for the ship's control air system. Use engine room and bridge controls to operate CPP system when engines are run.

2. Test by simulation and record all pressure and temperature transducers in accordance with ship's automation test procedure on an annual basis.

PURPOSE: To test control system operability.

FREQUENCY OF PERFORMANCE: 3-months/annual intervals.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit written report of conditions found to CMS Representative.

WARNING: DO NOT MEGGER CONSOLES OR COMPONENTS! Damage will result.

ITEM 355 SOUND POWERED TELEPHONE SYSTEM

TASK: Test operate the telephone system at each station and examine telephones for defects. Check outside watertight boxes for condition. Check station-to-station continuity in every dialing combination.

PURPOSE: To insure operational readiness of the sound powered telephone system.

FREQUENCY OF PERFORMANCE: 6-month intervals.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit a written report of conditions found to CMS Representative.

ITEM 360 GALLEY EQUIPMENT

TASK: 1. Visually inspect the following equipment for internal and external deterioration:

a. General Electric Oven Model CN63
b. Deep Fat Fryer - GD Model DK-20
c. Marine Dishwasher - GE Model SK501
d. General Electric Marine Range Model MR 73A

2 Operate switches without power to ensure they are mechanically free.

3. Operate doors to insure that hinges are free and that latches engage.

4. Megger test each unit and system. (See item 330).

5. Apply electric power to each heating unit through their respective switches at the lowest heat setting to test plates, heating coils and proper operation of thermostat.

6. After completion of testing, turn all switches and controls to "OFF" position and disconnect power switches or breakers.

PURPOSE: To insure that galley equipment is operable.

FREQUENCY OF PERFORMANCE: 6-month intervals.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: A written report of conditions found and megger readings shall be given the CMS Representative.

ITEM 365 VENTILATION SYSTEMS

TASK: 1. Inspect all systems for damage and deterioration.

2. Run blowers for 30 seconds. It is not necessary to open closures.

3. Operate all fire damper doors to insure freedom of movement.

PURPOSE: To rotate motors, insure readiness, and to facilitate activation.

FREQUENCY OF PERFORMANCE: 6-month intervals.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit written report of conditions found to CMS Representative.

ITEM 370 BATTERIES

TASK: 1. Marine-type batteries for each ship for the following services have been provided.

a. Four each, 6 volt, 200 amp. hours starting batteries for emergency diesel generator, 02-112-0;

b. Eight each, 6 volt, 100 AMP. HOURS, for general alarm and internal communications located at, 02-104-2;

c. Two each, 6 volt, 500 AMP. HOURS, emergency radio, 02-104-2;

d. One each, 12 volt, Gel-Cell, Inside Data Logger in aux. machinery space;

e. Five each, 6 volt, 8 AMP. HOURS, power sonic model PS 682, fire detection system.

1. Place all batteries on trickle charge onboard the vessel and maintain for instant use.

2. Inspect each battery cell by cell to insure adequate liquid level. Fill as required with shipyard supplied distilled water.

PURPOSE: To insure operational readiness and to facilitate activation.

FREQUENCY OF PERFORMANCE: Continual/weekly.

MATERIAL REQUIREMENTS: Distilled water.

RECORD AND REPORT: Submit written confirmation that batteries are on trickle charge to CMS Representative.

ITEM 375 GENERAL ALARM SYSTEM

TASK: Using portable battery, referencing Damage Control Manual (located on ship) for reference for bell locations; test the general alarm system and ascertain that all bells and operating levers operate satisfactorily.

PURPOSE: To insure that the general alarm system is operable.

FREQUENCY OF PERFORMANCE: 6 month intervals.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit written report of conditions found to CMS Representative.

ITEM 380 SHIP'S RADIO EQUIPMENT

DATA: Main Transmitter: ITT Mackay, 2012C
HF Transceiver: SEA Inc., SEA300A
HF Transceiver: Harris, RF-193
Reserve Transmitter: ITT Mackay, 2017A
Main Receiver: Harris RF-505A
Reserve Receiver: ITT Mackay, 3023A
HF Receiver: Harris, RF-505A
500 kHz Automatic Keyer, ITT Mackay, 5103A
500 kHz Auto Alarm Receiver: ITT Mackay, 5003C
Battery Charger, ITT Mackay, MR-515-197A
2182 kHz Watch Keeping Receiver: Electro-Nav, EN2182R
Direction Finder: ITT Mackay, 4005A
Lifeboat Radio: ITT Mackay, 403A
No. 1 VHF Radiotelephone: Raytheon, RAY-90
No. 2 (Ship To Ship) Radiotelephone: Raytheon, RAY-90
EPIRB, Litton Systems, Inc., Mod. 948-000001
Lifeboat Radios: ACR Electronics, SR-102
NAVTEX Receiver: JRC, NCR-300A
INMARSAT-A: Magnavox, MX2400
GPS Receiver: Trimble
SART Radar Transponder: Lo-Kata, 9-IM
VHF Hand-Sets: Motorola, Trition MP+

TASK: The Crowley Representative will provide a certified marine radio technical representative to activate, test and operate ship's radio station and auxiliary radio transmitters and receivers.. Test auto-alarms, antenna, weather fax and associated equipment. Test VHF and ship-to-ship communications equipment. Deactivate equipment on conclusion of task and report accordingly. Coordinate repairs with CMS Representative.

ITEM 380 SHIP'S RADIO EQUIPMENT continued

NOTE: This item is to be coordinated with ABS Representative's inspections for the annual renewal of the ship's Safety Radiotelegraphy Certificate.

PURPOSE: To insure that radio equipment is operational and can meet the 10-day ready for sea activation requirement.

FREQUENCY OF PERFORMANCE: Annually.

MATERIAL REQUIREMENTS: Contractual services for technical representative.

SPECIAL NOTE: The service representative shall determine if there are local restrictions on radio transmission before any transmission/receiving tests are started.

RECORD AND REPORT: The service representative will submit written report of conditions found to CMS Representative.

NOTE: The report should include an letter to the Ship's Master verifying the condition of the ship's bridge-to-bridge VHF radio unit.

ITEM 385 NAVIGATION EQUIPMENT

TASK: The CMS Representative will provide service technicians to operate and service the following navigational equipment:

1. Gyro compass, course recorder and autopilot: Sperry, MK-37E
2. Radar No. 1: Raytheon Mariner's Pathfinder, 34-50/6XR
3. Radar No. 2: Raytheon ARPA, TM/1660/12SR
4. Radar Interswitch: Raytheon, COMMERC1/C
5. Recording depth finder: Raytheon, R8220
6. Wind Indicator: Friez - 135, Aerovane
7. Loran C Receiver: Raytheon, RAYNAV-6000
8. Weather Fax: Furuno, DFAX
9. Doppler Speed Log: Raytheon Mark II, DSL-250

Servicing will consist of condition survey and a determination of the steps necessary for full activation within a 10-day period. Contractor shall provide a certified letter stating equipment conforms to Safety Of Life At Sea (SOLAS) requirements.

NOTE: The servicing should be coordinated with the US Coast Guard Certificate of Inspection or Mid Term Inspections.

PURPOSE: To insure operational readiness:

ITEM 385 NAVIGATION EQUIPMENT continued

FREQUENCY OF PERFORMANCE: Annually.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit written condition reports to CMS Representative.

ITEM 390 BALLAST DISCHARGE OIL CONTENT MONITOR

DATA: Mfg. Bristol Babcock
Type 07M18, Oil Content Monitor
U.S. Rep: North East Controls, Inc.
S. Hackensack, NJ - Tel: (201) 440-5600

LOCATION: Main Deck Passage, 1-98-2

TASK: Activate the system and manually test alarms. Test unit sensitivity per manufactures directions. Insure alarm and recording responses during the tests.

NOTE: The servicing should be coordinated with the US Coast Guard Certificate of Inspection or Mid Term Inspections.

PURPOSE: To insure that the system is operable.

FREQUENCY OF PERFORMANCE: Annual intervals.

MATERIAL REQUIREMENTS: External water source.

RECORD AND REPORT: Submit written report of conditions found to CMS Representative.

400 HULL

ITEM 405 LIFEBOAT, DAVITS AND WINCHES

DATA: Mfg. Marine Safety Equipment Corporation
Pt. Pleasant, New Jersey
Mod: Harkrader Gravity Davit
Type: 50-90; Max. Load: 10,250 lbs
Serial No. 565 series; Built: 1956

TASK: 1. Check davit winch oil levels; refill with owner's supplied oil as required prior to operating equipment. Lubricate all grease fittings and exposed areas (Quarterly Requirement).

2. Lower boats a minimum of three times to above the water's edge or as far down as possible to insure unassisted lowering. Demonstrate independent operation of forward and aft limit switches. Allow each boat to lower at maximum rate to test unassisted braking (Quarterly Requirement).

3. High pressure lubricate all winch, davit and sheave fittings. Coat exposed and top layer drum wires with heavy duty grease (Quarterly Requirement).

4. Inspect boat bilges to insure they are dry and clean (Quarterly Requirement).

5. Inspect boat covers to insure that they are adequate for continues service, not torn or holes, and that all lashings are adequate. Replace boat cover on each boat on the completion of the tests and operation (Quarterly Requirement).

6. Restore disturbed coatings on boats, davits and winches per paint specifications with owner's supplied paint (Quarterly Requirement).

7. Per CFR 46, 94.35-5, provide the following services, in addition to Items 1 through 6 above, during US Coast Guard Inspections every year (next due in October 1997):

a. Provide and temporarily install in each boat a total of 6,640 pounds (3,020 kilos) to conduct davit and equipment weight tests (Annual Requirement).

b. Provide line handlers, pilot and one assist tug boat to breast the ship's stern off the dock to provide for clearance during the lowering of the inboard boat per the following item (Annual Requirement).

c. Insure boat drain plugs are in place. Lower weighted boat to the water's edge. Board one boat operator, one engineer and two laborers to start engine, release and operate the boat under power in the astern and ahead positions for 15 minutes, connect boat to boat falls, stop and secure the engine, disembark

ITEM 405 LIFEBOAT, DAVITS AND WINCHES continued

while boat is hoisted aboard and secured, flush the engine cooling system with fresh water. Open boat drain plugs, drain and clean bilges before covering (Annual Requirement).

MACHINERY: Port and starboard lifeboat engines, releasing gear, winches, davits, wires, blocks, and limit switches.

PURPOSE: To insure that all equipment operates freely.

FREQUENCY OF PERFORMANCE: Quarterly and Annual.

MATERIAL REQUIREMENTS: Grease, commercial grade fresh water, grease fittings, owner supplied Mobil One lube oil, paint.

RECORD AND REPORT: Make written report of any mechanical or material defects to the CMS Representative with repair cost estimate included.

ITEM 407: LIFEBOATS:

DATA: Mfg: Lane Lifeboat and Davit Corporation
Brooklin, New York
Serial No. 151 series; Cubic Capacity: 723
Size: 28' x 9.79' x 4.12'; Weight: 6320 lbs.
Persons: Originally 62/Reduced to 35; Built: 1970

TASK: Lifeboat inspection and servicing requirements.

1. Remove herculite boat covers from both 37-person motor lifeboats. Inspect interiors and exteriors for damage and coating deterioration. Clean as required. Insure drains of boats are open and free and that bilges are dry and clean.

2. Visually inspect engines for damage and deterioration. Provide commercial grade fresh water for satisfactory engine cooling and pump lubrication. Check lube oil levels in engines, add owner's supplied oil as required. Drain and change lubricating oil in each engine annually. Start and operate in ahead and astern position to insure condition without overheating. Fill fuel tanks with gas oil from ship's supply as needed. Change fuel annually, using shore supply. Add proper concentration of owner-furnished biocide to fuel as needed.

3. Insure proper concentration of cooling water anti-freeze. Fill if required from owner's supply.

ITEM 407: LIFEBOATS continued

4. Lower each boat, as clearance allows, to the 01 Deck level. Lower, if possible, a minimum of three times to insure freedom of lowering without manual assistance. Demonstrate independent fore and aft limit switch operation.

5. After all work is completed reinstall lifeboat covers.

PURPOSE: To insure operational readiness.

FREQUENCY OF PERFORMANCE: 3-month intervals and annually.

MATERIAL REQUIREMENTS: Owner's supplied lube oil, grease, gas oil fuel, and antifreeze.

RECORD AND REPORT: Submit written report of conditions found to CMS Representative.

ITEM 410 LIFE RAFTS

ALATNA

DATA:	Mfg: B. F. Goodrich	Mfg. B. F. Goodrich
	Type: 25 Man, Mark 3	Type 25 Man, Mark 3
	Serial No. 25MM US 4	Serial No. 25MM US 13
	Lot: 205, 7/80	Lot: 158, 12/76

CHATTTAHOOCHEE

DATA:	Mfg.: ELLIOT - (C. J. Hendry)	Mfg.: ELLIOT - (C. J. Hendry)
	Type: 25 Man - Mark 5	Type: 25 Man - Mark 5
	Serial No: CJH/25 MN/2176	Serial No: CJH/25 MN/2178
	Lot: 24; 10/5/81	Lot: 24; 10/5/81

TASK: Life Raft inspection and servicing requirements.

1. Remove life rafts and hydro-static release mechanisms from the vessel and prepare for shipment via CMS Representative supplied purchase order to cover transportation, servicing and U.S. Coast Guard Inspection.

2. Return rafts to the vessel on return from inspection. Place rafts in racks, cover securely with shipyard supplied, water-proof tarpaulin, and lash raft to rack frame with shipyard supplied 3/8"diameter rope. Return hydrostatic release to CMS Representative for securing onboard.

NOTE: Effective 1/97, the only U.S. Coast Guard Approved Japanese service vendor is:

Yokohama Tsusho Co., Ltd., Yokohama, Japan
Telephone: (045) 621-8588

The CMS Representative will arrange for life raft transportation to and from Yokohama.

PURPOSE: To insure operational readiness and U.S. Coast Guard Certification.

FREQUENCY OF PERFORMANCE: Annual requirement, rafts to be serviced and returned to the vessel prior to 1 October each year.

MATERIAL REQUIREMENTS: Water-proof tarpaulin and 3/8 inch diameter rope.

RECORD AND REPORT: Provided by service vendor and U. S. Coast Guard.

ITEM 415 FIRE FIGHTING EQUIPMENT

TASK: Provide the following annual services for the fixed CO_2 System.

1. Cargo tank systems - hand operate each tank valve 5 times to insure freedom of operation. Inspect all piping and fittings to insure they are corrosion-free and protective coatings are adequate.

2. Open manual pull boxes, remove glass and operate all pulls to insure freedom of operation. Repeat each pull a minimum of 5 times. Verify cable freedom by stationing an assistant in the respective CO_2 bottle storage room. Tag each pull with date of test and re-install glass covers.

3. Grease all exposed unpainted machined surfaces. Restore all disturbed coatings per specifications with owner's supplied paint.

4. The CMS Representative will provide a US Coast Guard approved Contractor to inspect all CO_2 cylinders on the ship, a total of 50 bottles. The Contractor will weigh all cylinders and submit a written report of weight, serial numbers, and date of last hydrostatic test to CMS Representative. The Contractor will affix weight and date of weighing to the inspection card on each bottle.

5. Per CFR 46, 108.449, assist the CMS Representative provided Contractor with the complete fixed CO_2 system pressure test with Contractor's supplied nitrogen. The test includes pressures up to 70 kilograms per cm^2 (1,000 psi) and includes valves, alarms and release delays. Estimate 24 labor hours to accomplish the above.

NOTE: CO_2 tests are to be witnessed by the US Coast Guard.

7. Every 12 years (next due in 2004) 10 x 50 lb., 38 x 75 lb., and 2 x 100 lb. CO_2 cylinders are to be removed from the vessel, discharged completely, and sent to a US Coast Guard approved, CMS Representative provided hydrostatic test facility. Following hydrostatic testing, the cylinders are to be filled and returned to the vessel for storage onboard in designated locations. Estimate 48 labor hours to remove, discharge and replace the cylinders on board.

TASK:. Annual services for the portable fire extinguishers

1. The CMS Representative will provide a US Coast Guard approved Contractor to inspect all portable and fixed cylinders and extinguishers on the ship for serviceability and general condition. No shipyard labor or material required.

2. The CMS Representative will provide a US Coast Guard approved Contractor will weigh all portable CO_2 extinguishers. No shipyard labor or material required.

ITEM 415 FIRE FIGHTING EQUIPMENT continued

3. The US Coast Guard approved Contractor will tag each portable fire extinguisher with the date of inspection, and, for CO_2 extinguishers include the weight. The Contractor shall provide an inventory indicating the fire extinguisher number, location, weigh, inspection result and date of last hydrostatic test.

4. Every 5 years (next due in 2001) 38 each x 15 pound and 2 each x 5 pound CO_2 cylinders are to be removed from the vessel, discharged completely, and sent to a CMS Representative provided US Coast Guard approved hydrostatic test facility. Following hydrostatic testing, the cylinders are to be filled and returned to the vessel for storage onboard in designated locations. Estimate 64 labor hours to remove, discharge cylinder contents and later replace the cylinders on board.

NOTE: Effective 1/97, the only U.S. Coast Guard Approved Japanese service vendor is:

Yokohama Tsusho Co., Ltd., Yokohama, Japan
Telephone: (045) 621-8588

The CMS Representative will arrange for CO_2 transportation to and from Yokohama.

PURPOSE: To insure operational readiness.

FREQUENCY OF PERFORMANCE: 3-month intervals, annually and at 5 and 12 yearly intervals.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Reports to be provided by CMS Contractors and the U.S. Coast Guard. The shipyard is to proved reports on damaged or inoperative equipment as required.

ITEM 420 FIRE STATIONS, HOSES, AND VALVES

TASK: 1. Fire Valves (3 months)
Lubricate valve stems and grease fittings. List all valves which do not operate freely or are inoperative for CMS Representative. Fully open and close all weather deck fire main valves a minimum of three (3) times.

2. Fire Stations (3 months)
Inspect all weather deck and interior fire stations to insure that hose caps and other covers are in place and hose racks are in good repair.

3. Fire Hoses (Annual)
Lay out hoses on the dock, insure that hose gaskets are in place, and connect end-to-end. Hydrostatically test all hoses with commercial grade fresh water to 125 psi for the US Coast Guard inspector. Drain and dry hoses for an minimum of 24 hours. Coil, lash and store hoses onboard in CMS Representative's designated location.

PURPOSE: To insure free operation of all valves and adequacy of equipment

FREQUENCY OF PERFORMANCE: 3-month/annual intervals.

MATERIAL REQUIREMENTS: Grease.

RECORD AND REPORT: Make written report including estimated repair costs for any mechanical or material defects to the CMS Representative.

ITEM 425 MOORING FITTINGS

TASK: High pressure lubricate with shipyard supplied heavy duty, industrial grade grease, all mooring fittings. Test all operating fittings for freedom of movement. Replace broken or missing grease fittings from ship's supply.

EQUIPMENT: All roller chocks, roller fairleads, anchor pawls.

PURPOSE: To insure the mooring fittings work freely.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: Grease, grease fittings.

RECORD AND REPORT: Make written report of mechanical defects to the CMS Representative. Include an estimate of repair costs for each item.

ITEM 430 DECK MACHINERY

TASK: Lubricate all fittings and test operate winches in both directions a minimum of 10 revolutions. Engage/disengage anchor windlass port and starboard wildcats five (5) times. Replace grease fittings as required. Check lube and hydraulic oil levels. Add as required from ship's supply.

MACHINERY: Anchor windlass and stern mooring winch

PURPOSE: To insure all equipment operates freely.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: Grease, grease fittings, lube oil.

RECORD AND REPORT: Make written report of mechanical defects to the CMS Representative. Include an estimate of repair costs.

ITEM 435 HOSE GEAR

TASK: Lubricate all fittings on winches, blocks, and goose-necks as required. Test operate runner and topping lift winches in up/down modes for a minimum of 10 revolutions. Replace grease fittings from ship's stores as required. (ALATNA only: Check and refill lube and hydraulic oil as required from owner's supply).. Apply fresh coating of grease to exposed wires. Slush as necessary to maintain a complete coating using shipyard supplied heavy duty industrial grade grease.

EQUIPMENT: Port and starboard hose booms and winches.

PURPOSE: To insure that all equipment operates freely.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: Owner's-furnished grease, grease fittings, lube oil, hydraulic oil.

RECORD AND REPORT: Make written report of any mechanical or material defects to the CMS Representative; include repair cost estimates for each defective item.

ITEM 440 CARGO VALVES

TASK: All main deck, forward and aft pumproom, forward fire and ballast pumproom valves shall be operated in full open to full closed position a minimum of three (3) times. Pressure lubricate valve stems reach rods, deck penetrations, and fittings as required. Coat valve stems and indicators with shipyard supplied heavy duty, industrial grade grease. Replace grease fittings as required from ship's stores. All valves must operate freely by hand only, without valve wrenches or other tools. List all valves which do not operate freely with repair recommendations and estimated repair costs. Remove and dry out any water inadvertently released into empty cargo tanks, pumproom bilges and void spaces.

CAUTION: Valves to designated ballast tanks, containing ballast water are not to be opened. These valves shall be chained and locked shut with owner's supplied chain and locks.

LOCATION: Forward pumproom motor room, forward pumproom, all cargo/oil tanks, aft pumproom.

PURPOSE: To insure that all valves operate freely.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: Grease, grease fittings.

RECORD AND REPORT: Make written report and repair estimate for any mechanical or material defects to the CMS Representative.

ITEM 445 WATERTIGHT AND WEATHER-TIGHT CLOSURES

TASK: Visually inspect all watertight and weather-tight doors, hatches and scuttles for damage or leakage. Lubricate wing nuts, dogs, locks, and hinges as applicable. Close and lock all on completion.

1. List of doors, hatches and airports to be dealt with:

a. Watertight Doors (26" x 72")

Battery Locker	02-102-2
Chart Room	02-100-1
Gyro Room	02-112-1
Emergency Gen. Room	02-114-1
Fan Room	02-120-1
Fan Room	02-120-2
Stack Door	03-108-1
Passage Way	01-91-0

ITEM 445 WATERTIGHT AND WEATHER-TIGHT CLOSURES continued

a. Watertight Doors (26" x 72") continued

Passage Way	01-105-1 & 2
Cleaning Gear Locker	01-104-1 & 2
Passage Way	01-124-1
Passage Way	01-84-1
Passage Way	01-84-2
Passage Way	01-58-1
Passage Way	01-58-2
Passage Way	01-24-1
Passage Way	01-24-2
CO_2 Room	01-23-1
Fwd Pump Room	01-25-2
Aft Pump Room	01-85-1
Fan Room	01-20-0

b. Hatches

01-5-1	24" x 24"
01-23-1	36" x 36"
01-111-2	25" diameter
01-25-2	36" x 36"
01-88-1	36" x 36"
01-131-1	35" x 35"
1-145-1	15" x 35"
03-140-0	15" x 26" Top of Stack
03-140-1	10" x 26" Side of Stack

c. Airports:

1-44-1	One
1-51-2	One
1-64-2	One
1-70-1	One
1-75-2	One
1-91-3	Two
1-91-1	One
1-91-4	Two
1-99-1	One
1-105-3	One
1-110-1	One
1-115-1	One
1-120-1	One
1-126-1	One
1-126-2	One
1-120-2	Three

ITEM 445 WATERTIGHT AND WEATHER-TIGHT CLOSURES continued

c. Air Ports continued

1-110-2	Two
1-105-6	One
1-99-2	One
01-91-2	Two
01-91-0	One
01-91-1	One
01-97-2	One
01-97-1	One
01-106-1	One
01-106-2	One
01-114-1	One
01-114-2	One
01-115-0	Five
02-97-4	One
02-102-1	One
02-102-2	One
02-101-1	One
02-96-1	One

d. Pilot House Windows:
These windows are approximately 32" x 32" made by Kearfott Company. Nine (9) windows to be dealt with. Operate in full range, up and down, to insure smooth operation and tracking.

3. In addition to the list of doors, hatches and airports specified above, the Contractor shall inspect the sealed vents at various locations.

PURPOSE: To insure that closures can be freely operated.

FREQUENCY OF PERFORMANCE: 6-month intervals.

MATERIAL REQUIREMENTS: Lubricating grease

RECORD AND REPORT: Submit written report of any defects to CMS Representative.

ITEM 450 BILGE AND DRAIN WELL INSPECTION

TASK: Inspect drain wells and bilges for clean condition and the absence of liquids, locations are:

a. Forward Pump Motor Room 4-20-0
b. Forward Pump Room 4-23-0
c. Aft Pump Room 3-87-0
d. Auxiliary Machinery Room 4-91-0
e. Engine Room 4-103-0
f. Steering Compartment 2-120-0

PURPOSE: To insure operational readiness.

FREQUENCY OF PERFORMANCE: Weekly.

MATERIAL REQUIREMENTS: None.

RECORD AND REPORT: Submit a written report of conditions found and date of accomplishment to CMS Representative. Submit cost estimate for cleaning and repair items.

ITEM 455 BALLAST TANKS

TASK: 1. Sound the CMS Representative's specified commercial water ballast tanks. These tanks are treated with owner's supplied Drew/Ameroid CIL Rust Inhibitor.

2. Add to system owner's supplied Drew/Ameroid CIL Rust Inhibitor and biocide as indicated by owner's supplied test kit results, per manufacturer's recommendations to each ballast tank.

3. Insure that each ballast tank exposed weather deck vent is open to compensate for seasonal sea water temperature changes. The following tanks are generally kept in ballast:

	Tank	Frames	Barrels
a.	1 Port Wing,	(Fr. 27-42)	1,324
b.	1 Stbd Wing,	(Fr. 27-42)	1,324
c.	1 Port Ballast	(Fr. 20-27)	539
d.	2 Stbd Ballast,	(Fr. 20-27)	539
e.	Fore Peak Aft,	(Fr. 10-20)	981

PURPOSE: To inhibit tank corrosion, to prevent algae growth, and to insure operational readiness.

ITEM 455 BALLAST TANKS continued

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: Owner furnished Drew/Ameroid CIL and test kit.

RECORD AND REPORT: Submit written report of soundings, condition of inhibitor and date of accomplishment to CMS Representative.

ITEM 460 TANK SOUNDINGS

TASK: 1. Sound all double bottom tanks, diesel fuel tanks, settler tanks, cofferdams, peak, wing and deep tanks. Tank levels and the identity of the type of liquid in each tank shall be recorded and one copy posted in the Chief Engineer's office and one copy given to the CMS Representative. Levels in tanks shall be recorded in feet/inches and in gallons or barrels. Record levels and dates on duct-tape adjacent to each tank for reference ease.

2. All fuel tanks are to be tested and treated to the proper concentration of biocide, from owner's supply, as recommended by Drew Chemical.

PURPOSE: To determine liquid levels and to check for possible contamination.

FREQUENCY OF PERFORMANCE: 3-month intervals.

MATERIAL REQUIREMENTS: Tee wrench, biocide test kit, sounding tape and sounding tables.

RECORD AND REPORT: Report soundings, biocide levels, any leakage or contamination to CMS Representative.

ITEM 462 PIPE LINE HYDROSTATIC TESTING

TASK: To pressure test the vessel's cargo, ballast, bilge and fire lines the following steps shall be taken:

1. Cargo, Ballast & Bilge Piping

a. Close all valves to each system in advance of testing. Disconnect or otherwise remove temporary fittings and appendages as required to prevent damage and insure safety. Close open pump strainers. Supply air pressure connections from shipyard supplied air to the forward pumproom, deck manifolds and aft pumproom. Open cargo tank tops, manholes, water-tight doors as required to view pipelines and valves.

b. Supply 150 psi air pressure to each system per the CMS Representative. Bring air pressure slowly up to maximum pressure checking pipe lines and valves frequently during the process.

c. At approximately 50 psi open the individual system end suction or termination valve/s, one at a time allowing the pressure to re-build, to blow each system and off-sticker clean.

d. At full pressure of 150 psi, inspect all systems, log pipeline leaks, leaking valves and related problems for repair.

e. Release pressure, return valves and fittings to normal Phase IV and dehumidification settings. Open pump suction strainers as appropriate. Clean tank bottoms, bilges and void as required following the tests.

f. Report deficiencies to the CMS Representative. Address a letter of test confirmation to the local ABS Surveyor's office with a copy to the CMS Representative.

2. Fire Main

a. Close all valves in the system in advance of testing. Disconnect or otherwise remove temporary fittings and appendages as required to prevent damage and insure safety. Close open fire pump strainers. Supply air pressure connections from shipyard supplied air to the fire line. Open water-tight and doors as required to view pipelines and valves.

b. Supply 150 psi air pressure per the CMS Representative. Bring air pressure slowly up to maximum pressure checking pipe lines and valves frequently during the process.

c. At approximately 50 psi open the individual exposed weather deck valves, one at a time allowing the pressure to re-build, to blow each system and off-sticker clean.

ITEM 462 PIPE LINE HYDROSTATIC TESTING continued

d. At full pressure of 150 psi, inspect all systems, log pipeline leaks, leaking valves and related problems for repair.

e. Release pressure, return valves and fittings to normal Phase IV and dehumidification settings. Open pump suction strainers as appropriate. Clean tank bottoms, bilges and weather deck areas as required following the tests.

f. Report deficiencies to the CMS Representative. Address a letter of test confirmation to the local US Coast Guard inspector's office with a copy to the CMS Representative.

PURPOSE: To determine system status and insure readiness for service.

FREQUENCY OF PERFORMANCE: Annual.

MATERIAL REQUIREMENTS: Shipyard supplied air pressure, fittings and gauges.

RECORD AND REPORT: Written report listing deficiencies to CMS Representative. Letter of test confirmation to ABS and US Coast Guard local offices as applies to systems tested.

ITEM 465 OPEN ITEM

ITEM 475 TROPICAL STORM CONTINGENCY PLAN

TASK: To provide for vessel and related equipment security during the approach and passage of tropical and extra tropical storms, while moored at the Contractor's facility.

The following applies to periods during which the vessel is in Maintenance, Activation or Deactivation status when there is no crew onboard. The MILITARY SEALIFT COMMAND FAR EAST INSTRUCTION 3140.1C defines the approach of storms as follows:

Tropical Cyclone Condition IV - The storm trend indicates a possible threat of destructive winds within 72 hours.

Tropical Cyclone Condition III - Destructive winds are possible within 48 hours.

Tropical Cyclone Condition II - Destructive winds are anticipated within 24 hours.

Tropical Cyclone Condition I - Destructive winds are anticipated within 12 hours.

The Contractor shall assume the following tasks as the storm approaches and passes:

CONDITION IV

Evaluate current maintenance and repair projects, status of vessels' moorings, fenders, seaworthiness and water-tight integrity. Alert shipyard staff of activities required in the event continued exposure to storm.

CONDITION III

Commence closing down large projects effecting the vessel's security and integrity. If required, move vessel to assigned berth, re-moor with doubled lines and chains.

CONDITION II

Commence securing all projects and related activities. Commence removing, or securing, loose gear, equipment and material from exposed weather decks.

Review mooring lines and chains for chaffing and adjustment requirements. Confirm that fenders are inflated, securely moored and positioned.

Advise the Crowley Marine Services Representative of vessel status and details of approaching storm.

ITEM 475 TROPICAL STORM CONTINGENCY PLAN continued

CONDITION I

Provide supervisor and four laborers for 24-hour shift, to remain onboard the vessel through the storm passage to all clear. The personnel to be provided with food, water, foul-weather clothing, bedding, and VHF radio equipment with frequencies compatible with local harbor operations and tug companies.

The above personnel shall keep a continuous watch over the vessels mooring, fenders and alarm systems taking appropriate action as required to insure the vessel's security.

In the event of emergency, ship's equipment may be utilized as required. Personnel may use available ship's living and recreation spaces during the storm passage. All spaces utilized shall be cleaned following the storm passage.

The Crowley Marine Services Representative shall be kept closely advised, as circumstances permit, of the vessel status during and immediately following storm passage.

PURPOSE: To maintain vessel's security and integrity during storm passage.

FREQUENCY OF PERFORMANCE: During destructive storm passage.

MATERIAL REQUIREMENTS: Personnel and above noted equipment only. Tugs, if used, should be billed at appropriate hourly rates only.

RECORD AND REPORT: Communicate vessel's condition, preparations prior to, during and following storm passage per the above. Report all damages sustained, estimated repair costs and schedules to the Crowley Marine Services Representative.

ITEM 480 MOBILIZATION TOWAGE

TASK: To prepare the vessel for sea transit and towage from its lay berth at Chitose-Ko, Hiroshima Prefecture to the Contractor's lay berth for dry docking, repairs and/or long term berthing. The following items will apply:

1. Towage Preparation
   a. Close 23 each manholes and six each water-tight doors & hatches
   b. Allow ¥1.200,000 for securing/lashing miscellaneous tools & ship's gear, mooring lines, fresh water balasting, etc.
   c. Allow ¥950,000 for securing D/H, cathodic systems, related valves and pipe system, deck cargo and pumproom valves.
   d. Allow ¥420,000 for securing steering gear, shaft locks, miscellaneous engineroom and control room equipment.

2. Towage Survey
   Provide a Salvage Association Surveyor for approval of the vessel's towage preparation, towing arrangement, the towing tug, the proposed towing route and restrictions if any.

3. Towage
   a. Provide a minimum of 4,000 BHP, twin-screw, ocean classed tug, fully found with crew and fuel. An American Flag tug is preferred.
   b. Rig one each, 300 foot x 5"diameter synthetic emergency tow line, with 150 foot x 2 inch float-line and buoy from ship's stores. The emergency tow line to be connected to a short shot of 1-1/2 inch chain from ship's supply, led through a bow chock and festooned, with break-away line secured to hand rail bases, along the port or starboard side to the stern. The pick-up line and buoy shall be rigged from the end of the emergency tow hawser to trail astern of the vessel while under tow.
   c. Provide a surveyor approved towing bridle, rig and secure to the vessel's bow to the surveyor's approval.
   d. Provide and rig the international and Japan Marine Safety prescribed lights and towing signals
   e. Provide required port and Inland Sea clearances with local customs, Marine Safety and other Japanese agencies as required.
   f. Provide assist tugs, dockmaster and line handlers to unmoor the vessel and shift to stream.
   h. Provide Inland Sea Pilotage, assist and escort tugs and craft as required.
   i. Provide local inland waters pilotage, assist and escort tugs and craft as required.
   j. Provide line handlers, dockmaster, docking and mooring tugs at Contractors shipyard for mooring the vessel at its assigned lay berth.
   k. Disconnect towing gear and equipment as listed above, store ship's provided equipment per the CMS Representative.

ITEM 482 DEMOBILIZATION TOWAGE

TASK: This item only applies if the vessel is assigned for repair and or dry-docking only and not to be long term moored at the Contractor's facility. The item is to prepare the vessel for return sea transit and towage from its lay berth at the Contractor's lay berth to Chitose-Ko, Hiroshima Prefecture if required to demobilize the vessel. The following will apply:

1. Towage Preparation
   a. Per the shipyard's repair and dry-dock works secure the vessel for sea towage.

2. Towage Survey
   Provide a Salvage Association Surveyor for approval of the vessel's towage preparation, towing arrangement, the towing tug, the proposed towing route and restrictions if any.

3. Towage
   a. Provide a minimum of 4,000 BHP, twin-screw, ocean classed tug, fully found with crew and fuel. An American Flag tug is preferred.
   b. Rig one each, 300 foot x 5" diameter synthetic emergency tow line, with 150 foot x 2 inch float-line and buoy from ship's stores. The emergency tow line to be connected to a short shot of 1-1/2 inch chain from ship's supply, led through a bow chock and festooned, with break-away line secured to hand rail bases, along the port or starboard side to the stern. The pick-up line and buoy shall be rigged from the end of the emergency tow hawser to trail astern of the vessel while under tow.
   c. Provide a surveyor approved towing bridle, rig and secure to the vessel's bow to the surveyor's approval.
   d. Provide and rig the international and Japan Marine Safety prescribed lights and towing signals
   e. Provide required port and Inland Sea clearances with local customs, Marine Safety and other Japanese agencies as required.
   f. Provide assist tugs, dockmaster and line handlers to unmoor the vessel and shift to stream.
   h. Provide local inland waters pilotage, assist and escort tugs and craft as required.
   i. Provide Inland Sea pilotage, assist and escort tugs and craft as required.
   j. Allow ¥1,350,000 for line handlers, dockmaster, docking and mooring tugs at the Chitose-Ko, Hiroshima Prefecture shipyard for mooring the vessel at its assigned lay berth.

   k. Allow ¥2,275,000 for disconnect towing gear and equipment as listed above, and store ship's provided equipment per the CMS Representative; re-establishing D/H and cathodic systems and preparing the vessel for long term moorage.